

## Electronic Supplementary Information

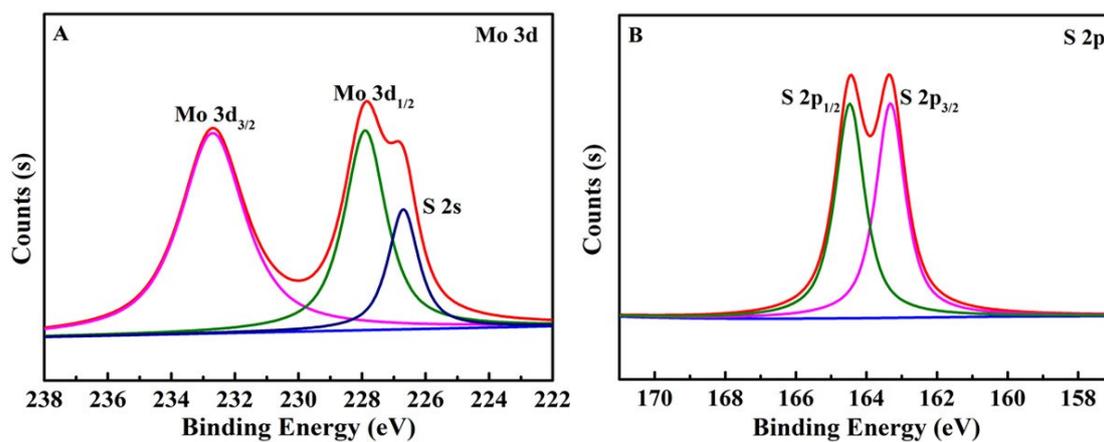
### **MoS<sub>2</sub> QDs co-catalytic Fenton reaction for highly sensitive photoluminescence sensing of H<sub>2</sub>O<sub>2</sub> and glucose**

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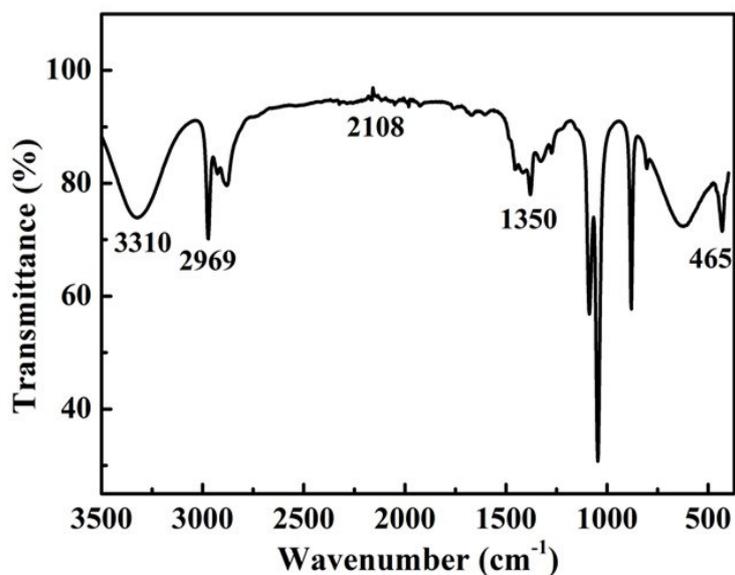
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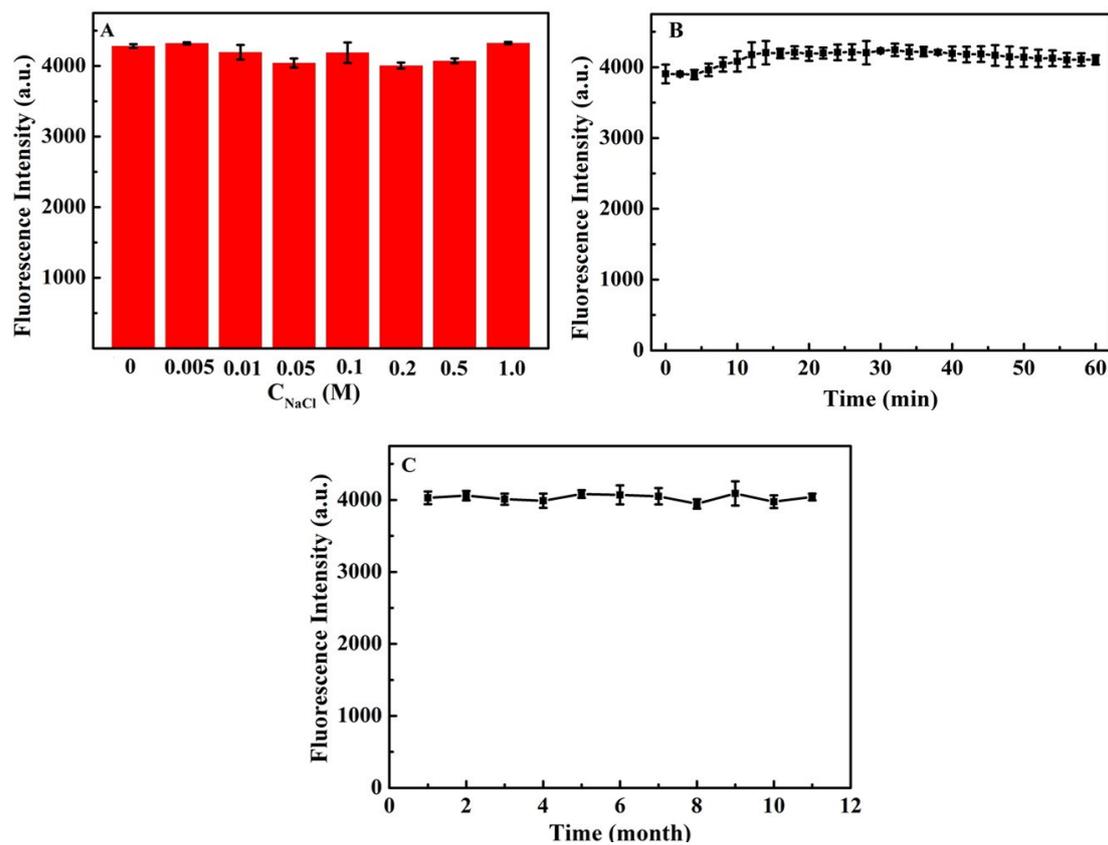
\* Corresponding authors



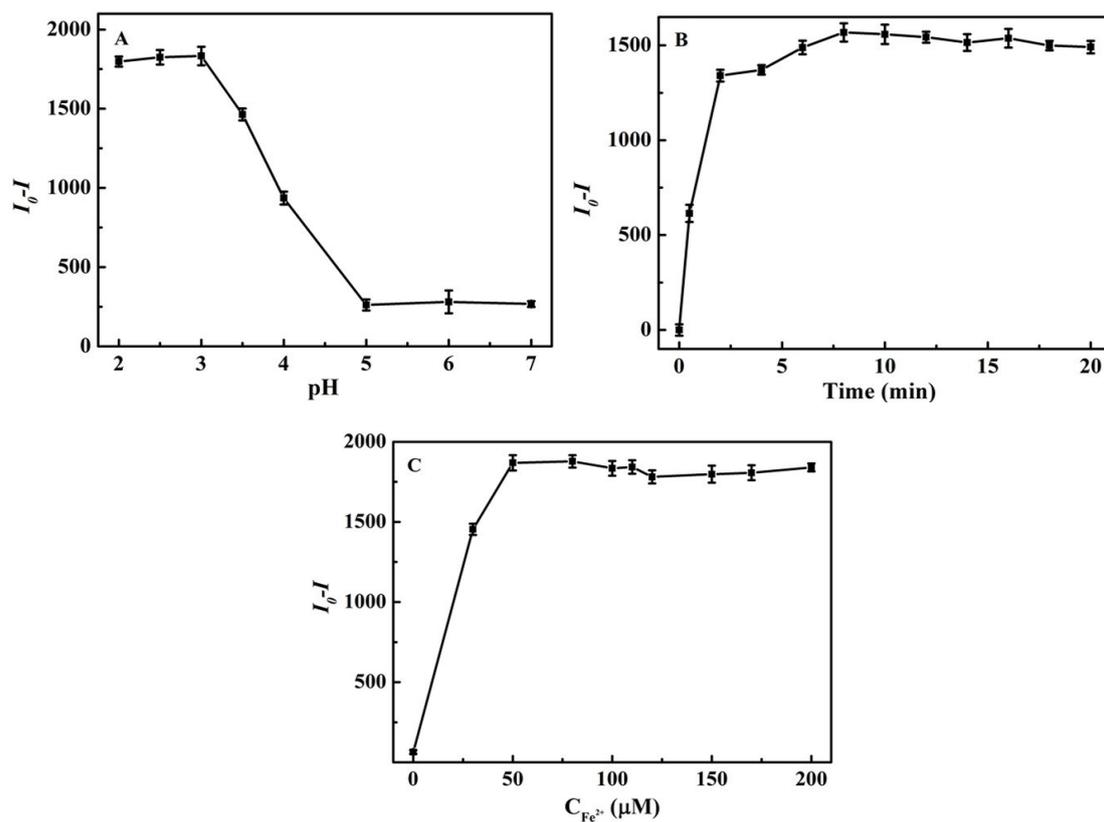
**Fig. S1** (A) The Mo 3d region of MoS<sub>2</sub> QDs in XPS spectrum; (B) The S 2p region of MoS<sub>2</sub> QDs in XPS spectrum.



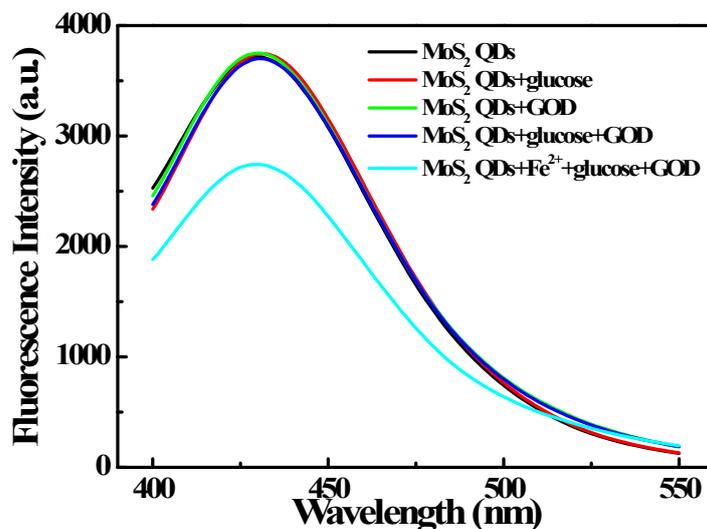
**Fig. S2** FT-IR spectrum of the as-prepared MoS<sub>2</sub> QDs.



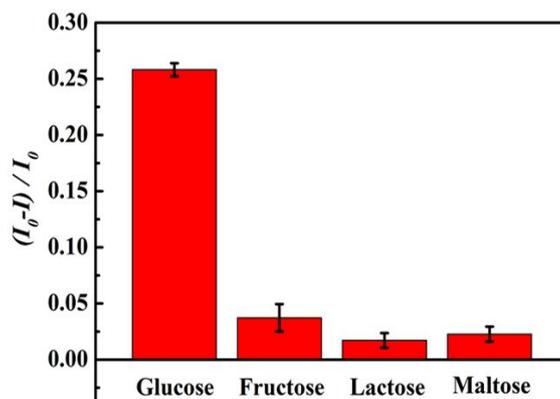
**Fig. S3** (A) The fluorescence response of MoS<sub>2</sub> QDs in the presence of different concentrations of NaCl (0 – 1 M), (B) The fluorescence response of MoS<sub>2</sub> QDs under continuous irradiation of Xe lamp in different time, (C) The fluorescence response of MoS<sub>2</sub> QDs during 11 months storage at 4 °C.



**Fig. S4** (A) Effect of solution pH. Conditions: 100  $\mu M$   $Fe^{2+}$ , 5  $\mu M$   $H_2O_2$ , reaction time 10 min. (B) Effect of reaction time. Conditions: 100  $\mu M$   $Fe^{2+}$ , 5  $\mu M$   $H_2O_2$ , pH 3.0 (0.2 M HAc-NaAc buffer). (C) Effect of concentration of  $Fe^{2+}$ . Conditions: 5  $\mu M$   $H_2O_2$ , pH 3.0 (0.2 M HAc-NaAc buffer), reaction time 10 min.  $I_0$  and  $I$  represent the FL intensity of 0.002X  $MoS_2$  QDs solution at 430 nm without and with  $H_2O_2$ , respectively.



**Fig. S5** The fluorescence response of MoS<sub>2</sub> QDs in the presence of single glucose (50  $\mu$ M), single GOD (1 mL, 1 mg mL<sup>-1</sup>) and their mixture in the absence and presence of Fe<sup>2+</sup>.



**Fig. S6** The selectivity for glucose detection with 0.05 mM glucose, 0.5 mM fructose, and 0.5 mM lactose, 0.5 mM maltose.  $I_0$  and  $I$  represent the FL intensity of MoS<sub>2</sub> QDs solution without and with glucose or other analogues, respectively.